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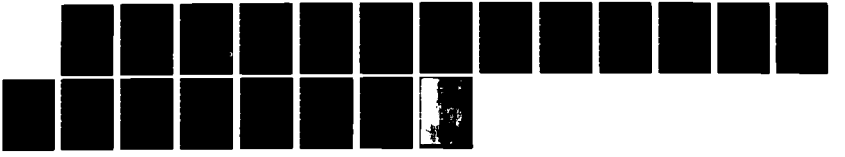

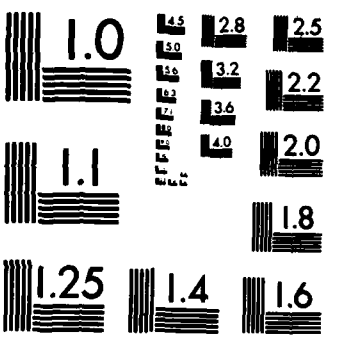

AIR FORCE LOGISTICS MANAGEMENT CENTER

AD A127847

Registered Equipment Management System (REMS)/
Vehicle Integrated Management System (VIMS)
Consolidation

By

Major Dan E. King
1Lt Randy Moller

AFLMC REPORT 820702

February 1983

AIR FORCE LOGISTICS MANAGEMENT CENTER
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ABSTRACT

The Air Force Logistics Management Center (AFLMC) was tasked to determine the practicality of a single base-level vehicle management system which combines the functions of the Registered Equipment Management System (REMS) and the Vehicle Integrated Management System (VIMS). The problem with REMS and VIMS is that the fleet management information is fragmented, i.e., different formats and separate reporting frequencies exist, thus making consolidation and analysis of the information difficult, and verification of data time consuming.

To conduct this study, we solicited inputs from the MAJCOM's to determine problems and potential benefits of combining the two systems. We also analyzed both systems for improvements. We determined REMS and VIMS contain adequate information for fleet management, but the way this information is collected and displayed limits meaningful use. We recommend using the upcoming On-Line Vehicle Interactive Management System (OLVIMS) prototype to test the concept of incorporating REMS and Authorization/Allowance information into the OLVIMS data base. The expanded OLVIMS will provide the data necessary for effective base-level fleet management.

EXECUTIVE SUMMARY

Recognizing that the value of vehicle management decisions at all echelons depends on the credibility of information gathered and reported at the base level, HQ USAF LEY/LET tasked the Air Force Logistics Management Center (AFLMC) to examine the two base-level vehicle management systems and determine the practicality of consolidation. These two vehicle management systems are the Registered Equipment Management System (REMS) and the Vehicle Integrated Management System (VIMS). REMS is a part of the Standard Base Supply System and its records, consisting of inventory information, are maintained on the Univac 1050-II computer. VIMS is a Transportation information system which collects, reports and depicts vehicle static, historical and scheduling data on the Burroughs 3500 computer.

The problem with the current arrangement is the fragmentation of fleet management information:

- Reports are made at different intervals and in different formats.
- Information does not always balance at Air Force level.
- Customer service is hampered.

To conduct this study, we solicited inputs from MAJCOM Supply and Transportation activities to determine present problems and potential improvements. We then analyzed both the REMS and VIMS for possible means of combining the systems and improving fleet management.

An upgraded VIMS system, called On-Line Vehicle Interactive Management System (OLVIMS), will be prototyped in mid-1983. It will offer an expanded data base which has the potential for many improvements in fleet management.

Phase IV will provide new hardware to replace the U-1050 and B-3500. Neither OLVIMS nor Phase IV will resolve the fragmentation problem.

We recommend the Air Force take advantage of the upcoming OLVIMS prototype to test the concept of incorporating certain data elements from REMS and Authorization/Allowance information into the OLVIMS data base. Transportation will become OPR for transferred REMS information while Supply will retain control over Authorization/Allowance data. If the prototype demonstrates that a single vehicle management system is feasible and useful, it can then be uploaded on all B-3500s, and eventually transferred to Phase IV hardware.

The expanded OLVIMS data system should provide:

- one focal point for fleet information,
- better information analysis,
- better decision capability,
- more accurate upward reporting and
- improved customer service.

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PROBLEM

We were tasked (see Atch 1) to initiate a joint Supply/Transportation (LGS/LGT) project to explore the practicality of a single base-level vehicle management system combining the functions of the Registered Equipment Management System (REMS) and the Vehicle Integrated Management System (VIMS).

REMS is a portion of the Standard Base Supply System (SBSS), and is run on the Univac 1050-II computer. When combined with the Authorized/In-Use detail, it tracks fleet inventory/use data. Ultimately, this information, when reported through the Air Force Equipment Management System (AFEMS), McClellan AFB, CA, becomes the basis for the Air Force Vehicle Requirements Computation and is used by AFLC and HQ USAF to determine acquisition strategy.

VIMS is a Transportation information system run on the Burroughs 3500 computer. The system collects and reports static, historical, and scheduling data. When reported to its data base at Robins AFB, GA, it becomes the Command, Air Force Vehicle Integrated Management System (CAFVIMS), providing fleet operations/maintenance cost data.

Both systems, REMS and VIMS, provide data required for fleet management decisions. The information is difficult to use at base level because it cannot be easily consolidated. This is due to the way REMS and VIMS evolved.

- Transportation was still using manual documentation methods when REMS was introduced. Supply had no need for operations and maintenance cost data, nor did they need data relating to preventive maintenance scheduling. Consequently, the REMS detail (and its associated Authorized/In-Use detail) dealt primarily with information pertaining to accountability and inventory control.

- When VIMS was designed and implemented it automated many of the

documentation actions performed by Vehicle Operations and Maintenance. It did not share/display all of the supply data already available in REMS. Whereas REMS ties authorizations and assets to stock number, VIMS ties assets more closely to vehicle management codes and registration numbers.

The two systems (REMS and VIMS) interface once a month or as directed locally. Card decks are exchanged between REMS and VIMS to update the following information:

- National Stock Numbers (VIMS update).
- Interchangeability and Substitute Standard Price (VIMS Update).
- Replacement Codes (VIMS has the most current information and passes the latest codes to REMS).
- Asset Inventory Control (Assets "not found in REMS or VIMS" require coordination between LGS/LGT).

The problem with the current arrangement is the fragmentation of management information. Each system produces its reports at different intervals and in different formats. This makes the information difficult to verify and inconvenient to use. Although inputs are made at base level, they do not always balance when they reach Air Force level. This complicates acquisition and policy decisions, creates additional paper work, and generally hampers prompt customer service.

METHODOLOGY

We considered it imperative this project receive general support from the Supply and Transportation communities in the major commands. Consequently, our first action was to solicit responses from MAJCOM Supply and Transportation activities regarding the need for such a project and their thoughts on what benefits or problems would occur from a REMS/VIMS consolidation. Their replies offered unanimous concurrence for the development of the project. Anticipated benefits/problems varied as expected; however, these inputs provided us with a general idea of the major areas of concerns.

We then proceeded to visit Supply and Transportation managers at the following major commands, bases, and agencies to determine the potential for systems consolidation:

HQ USAF	Washington, DC
HQ TAC	Langley AFB, VA
HQ SAC	Offutt AFB, NE
HQ ATC	Randolph AFB, TX
HQ ESC	Kelly AFB, TX
AFDSDC	Maxwell AFB, AL
3201th Trans Sq	Eglin AFB, FL
3210th Supply Sq	Eglin AFB, FL

Additionally, we coordinated with HQ AFLC/LOW, Wright-Patterson AFB, OH, and the Vehicle System Management Office, Robins AFB, GA, by teleconference.

We examined both the REMS and VIMS programs and the interface necessary between the two programs. Once we understood the good and the bad of the current systems, we began to look for changes to the systems that would benefit both Supply and Transportation. Although our tasking limited us to consideration of base-level programs, we looked closely at how each program reported its data to the data banks and higher headquarters. We did not want any of our recommendations to adversely impact information flow above the retail level.

FINDINGS

The information required for effective vehicle fleet management can be found in REMS and VIMS; however, neither program provides a consolidated display of management data. The data is fragmented and often not complementary. Conflicting formats and frequency of reports make analysis of information difficult and verification of data extremely time consuming. Each system is supplemented by numerous manual documentation methods in an attempt to close the loop on fleet management information.

We found that we were limited in our ability to change the Supply system. Changes to this system are being placed in a "hold" status due to the scheduled transition to Phase IV hardware. Phase IV hardware is scheduled to replace the U-1050 and the B-3500.

The current VIMS system is hampered by the fact it is a batch-mode operation. Analysis of VIMS data is generally after-the-fact. The current VIMS system is being upgraded by the Air Force Data Systems Design Center (AFDSDC) and will be prototyped at six Air Force installations beginning in mid-1983. The prototype will be designated On-Line Vehicle Interactive Management System (OLVIMS). It will offer expanded static, historical, and scheduling data and operate in the on-line mode. It will initially be loaded on the B-3500 for eventual transfer to the new Phase IV hardware.

Conversion to Phase IV and the implementation of OLVIMS will not resolve the fragmentation problem. As noted, Phase IV will simply move the programs (REMS and VIMS) to new hardware components. The implementation of OLVIMS will provide real-time analysis, but only for static, historical, and scheduling data. Authorization and allowance data is not included. Phase IV REMS and OLVIMS will continue to be separate and distinct. Each system will continue

to harbor information needed for fleet management actions.

Clearly, this information must be brought together in one information system so that real-time inquiries and analysis can be accomplished. Members of the Supply and Transportation communities both agree that responsible fleet management calls for the following information as a minimum. You must know:

- The types/quantities of vehicles you are supposed to have.
- The types/quantities of vehicles that are on-hand.
- Who the authorizations are for.
- Where, how, and by whom the assets are being used.
- What your costs are.
- Which assets are operational and estimated times in commission (ETICs) for those that are not.
- When new assets are scheduled in.

RECOMMENDATION

Current programs and planned changes to our automated systems (Phase IV and OLVIMS) lend themselves well to the creation and implementation of a system which would encompass "cradle-to-grave" vehicle information vital to real fleet management. Our recommendation is that the Air Force take advantage of the upcoming OLVIMS prototyping to test the concept of a single fleet management program. Hardware and manpower resources will already be in place. Relatively minor changes to the present On-Line VIMS program will be required.

We propose the Air Force Data Systems Design Center (AFDSDC) be formally tasked to incorporate certain elements of Supply's REMS and Authorized/In-Use details (Atch 2 and 3) into OLVIMS. Base-level transportation personnel will then be responsible for updating the REMS data while base-level supply personnel will remain in control of Authorizations. Visibility of all REMS and Authorization data will be available to both LGS and LGT. Utility programs already in existence can be used to share information from the REMS and Authorized/In-Use details of the U-1050. Specific information and proposals for merging the two systems are provided in Appendix 1.

Once the value of a single Vehicle Fleet Management Program is confirmed, it can be uploaded as part of OLVIMS on all base B-3500s. At the appropriate time the system can be transferred to Phase IV hardware. Supply and Transportation personnel at the AF Data Systems Design Center are agreeable that such a system is feasible and desirable.

A follow-on study of vehicle fleet management should be considered after the prototype.

SUMMARY

There is a legitimate and urgent need for a single vehicle fleet management system at base level. The Air Force logistics mission requires a significant amount of vehicular equipment support. A total of 106,000 vehicle authorizations have been recognized and verified. Approximately 96,000 assets are currently maintained to meet day-to-day and contingency requirements. These assets are valued in excess of $3 billion and required almost $300 million last year in maintenance. The FY83-87 Program Objective Memorandum (POM) will fund approximately $2.5 billion in new vehicle acquisition to fill shortages, replace vehicles that have fulfilled their life expectancy and satisfy new requirements such as the Rapid Deployment Force (RDF).

The Air Force vehicle fleet is far from standardized. It consists of 300 major interchangeable & substitute (I&S) groupings and 2500 different in-use stock numbers which must be managed. Vehicles range from new to more than 20 years old (Air Force vehicles average 8 years in age); creating a constant demand for management decisions regarding repair, salvage, and redistribution. These decisions should be made on credible information depicting present inventory levels, maintenance/operation costs, and scheduled arrivals of new acquisitions.

The need for more effective fleet management has been recognized, and the Air Force has initiated several actions to assure responsible fleet management. These are:

- Designating Warner Robins ALC as the System Management Office for Air Force vehicles.
- Creating the Vehicle Management Advisory Group.
- Rewriting AFM 77-310, Vol I, Acquisition Management, and Use of Motor

Vehicles to redesignate Vehicles Operations to Vehicle Management.

- Redesigning the Manpower Standard for Vehicle Management to designate a base fleet manager (Functional Code 4213).

- Expanding course material for fleet management in the seven-level course, J3AZR60370.

Our proposal is complementary to the above initiatives. We anticipate the following benefits:

- One focal point (LGT) for base-level vehicle fleet management.
- Easier, quicker, more accurate analysis.
- Time-sensitive decision capability.
- More accurate upward reporting.
- More responsive customer service.

Ultimately, this will mean significantly better management for our $3 billion vehicle fleet.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

3 MAY 1982

LET

Review of Vehicle Data System Needs

AFLMC/CC

1. Presently there are two automated systems used in the Air Force to provide necessary vehicle management information. The Registered Equipment Management System (REMS) provides necessary inventory, authorization and allowance data. The system is part of the Standard Base Supply System (SBSS) and runs on the U1050 computer. The second system, the Vehicle Integrated Management System (VIMS), provides required maintenance and operations costs, vehicle condition, maintenance scheduling and fuel consumption. VIMS runs on the B3500 computer.

2. In the near term, major changes in automated systems are planned, such as the new phase IV computers, the new material control system being prototyped by AFDSDC and the introduction of the On-Line Vehicle Interactive Management System (OLVIMS). In addition, we have asked AFDSDC/LG to explore the feasibility of establishing an automated vehicle information exchange network that would link bases to major commands, HQ AFLC and the Air Staff.

3. A preliminary review of the two existing systems revealed that many of the data fields in the two systems are duplicative. Our initial reaction is that a single unified system would be more appropriate than the two separate systems that exist today. Given the long lead time for systems development/modifications, it is important that we begin now to plan for our information needs. We therefore request that AFLMC develop a joint LGT/LGS project to explore the practicality of implementing a single base level vehicle management system combining the functions of both REMS and VIMS. If your review recommends such a merger, request you develop a plan which details all the necessary merger actions.

4. Close consultation will be required with AFDSDC for affected base level systems and HQ AFLC/LOW for affected wholesale systems.

5. This is a joint HQ USAF/LET/LEY request.

FOR THE CHIEF OF STAFF

GEORGE B. POWERS, JR, Brig Gen, USAF
Director of Transportation

cc: AFDSDC/LG
HQ AFLC/LOW

ATTACHMENT C-9

REM DETAIL RECORD (VEHICLES ONLY) (RAV)

1. GENERAL:

The purpose of the record is to account for each vehicle that requires serialized control. A separate detail will be established for each quantity of 1 that is on hand. The record is established automatically by program control at the time of issue and is deleted by program control when the item has been turned in or dropped by an inventory adjustment. This record provides for ease in reporting and inventory processing. These records will be located within the authorized/in-use detail record area.

2. FORMAT:

NO POS	SECTOR POS		LA	DESCRIPTION	INQUIRY PRINT POS
4	000-003		DA	Address of this Record	
15	004-018	084-098	SN	Stock Number	1-15
2	019-020	099-100	WS	System Designator	16-17
5	021-025	101-105	FJ	Federal Manufacturer's Code	18-22
1	026	106	TD	Type of Detail (V)	23
14	027-040	107-120	DU	Document Number	24-37
2	041-042	121-122	99	Blank	38-39
3	043-045	123-125	PU	Base of Planned Use	40-42
1	046	126	IE	Item Code	43
1	047	127		Blank	44
1	048	128	QP	Equipment Code	45
1	049	129	JU	Use Code	46
7	050-056	130-136	AW	Allowance Source Code	47-53
1	057	137	VS	Vehicle Status Code	54
1	058	138	VR	Vehicle Replacement Code	55
3	059-061	139-141	WD	Warranty Date or Blank	56-58
8	062-069	142-149	VN	Vehicle Registration	59-66
1	070	150	98	Blank	67
1	071	151	RC	REM Component Indicator	68
4	072-075	152-155	97	Blank	69-72
4	076-079	156-159	LT	Date Established or DOLT	73-76
4	080-083	160-163	NX	Address of Next Detail This S/N	
		164-167	OF	Address of Overflow To	

SECTION C

DETAIL RECORDS

ATTACHMENT C-1

AUTHORIZED/IN-USE DETAIL RECORD (RAB)

1. GENERAL:

The in-use detail record is established by the Allowance and Authorization Section when it is determined that an equipment item is authorized to a particular activity. When the item is actually issued, the on hand balance and in-use detail will be updated under program control. If an interchangeable or substitute item is issued, an in-use detail record (for the item issued) will be established with a blank quantity authorized. Balances on the in-use records will be adjusted only when an item has been turned in and/or by an inventory adjustment. The record provides for complete reporting and control of all in-use assets and authorizations. These records will be located within the authorized/in-use detail area.

2. REFERENCE:

Load, change, and delete actions are outlined in chapter 15.

3. FORMAT:

NO POS	SECTOR POS		LA	DESCRIPTION	INQUIRY PRINT POS
4	000-003		DA	Address of This Record	
15	004-018	084-098	SN	Stock Number	1-15
2	019-020	099-100	WS	System Designator	16-17
5	021-025	101-105	DQ	Quantity on Hand/In Use	18-22
1	026	106	TD	Type of Detail Record (B)	23
14	027-040	107-120	DU	Document Number	24-37
5	041-045	121-125	AQ	Authorized Quantity	38-42
1	046	126	IE	Item Code	43
1	047	127		Blank	44
1	048	128	QP	Equipment Code	45
1	049	129	JU	Use Code	46
7	050-056	130-136	AW	Allowance Source Code	47-53
3	057-059	137-139	PU	Base of Planned Use	54-56
3	060-062	140-142	AS	Alternate Storage Location Code	57-59
1	063	143	LZ	Label Indicator	60
1	064	144	LI	Special Allowance Indicator	61
2	065-066	145-146	FO	WRM Reporting Application Code	62-63
4	067-070	147-150	CC	BASS Composition Code	64-67
1	071	151	RC	REM Component/Equipment Management Exception Indicator	68
	072-075	152-155	98	Date Established	69-72
4	076-079	156-159	LT	Date of Last Transaction	73-76
4	080-083	160-163	NX	Address of Next Detail This S/N	
		164-167	OF	Address of Overflow To	

APPENDIX I

Merger Plan

OLVIMS will have to be expanded to accommodate REMS and Authorization data. In the vehicle master record, data fields must be established to receive, as a minimum, stock number, document number, use code, vehicle status code, vehicle replacement code, and vehicle registration number. This is a total of 47 bytes of information. An authorization record must also be created with the following information as a minimum: document number, number of vehicles authorized and assigned for each document number, allowance source code, and the registration number of each vehicle. Another record must be established to track vehicles expected in and their estimated delivery date.

For the purpose of prototyping, incorporating the new data in the OLVIMS vehicle record can be done with a 008 utility program that pulls the data from the U-1050 REMS detail and punches it into cards for input to the B-3500. Since this data will be controlled by Transportation, this will be the only update from the U-1050 to the B-3500. When Transportation changes this information, a card can be produced under program control to update the REMS detail in the U-1050. When a new vehicle arrives on station, Base Supply will furnish any information not available to Transportation to create the record.

The OLVIMS Authorization/Allowance record can be initially uploaded by running a 008 program on the U-1050 to retrieve the document number, authorized quantity and quantity on-hand, and allowance source code from the Authorized/ In-Use detail.

The record which contains information on in-coming vehicles will have to be manually input from a listing received from the MAJCOM Command Equipment

Management Office (CEMO). This information is not currently on the U-1050.

We recommend that during the prototype, a reconciliation of the U-1050 and B-3500 data take place. Since in-coming vehicles are not currently in the U-1050 data base, this information will not have to be reconciled.

Many additional improvements can be made when this system is converted to Phase IV hardware. Updates could be made electronically rather than by card input. Because the OLVIMS data base can be accessed by Supply, the REMS detail in the Supply data base can be deleted, thus eliminating duplicate information. Another improvement area possible under Phase IV can be made in the way we process vehicle receipts. Currently, Supply has to process three transactions: a special requisition (SPR), a receipt (REC), and an issue (ISU). This should be reduced to one transaction which Transportation could process with the information available as a result of the merged system. This will eliminate much of the manual documentation involved between Supply and Transportation.

END

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